

WHAT IS CLAIMED IS:

1. A protein having a labeling compound attached to its C-terminal, in which said compound comprises a label portion comprising a label substance and an acceptor portion comprising a compound having an ability of binding to a C-terminal of a synthesized protein when protein synthesis is carried out in a cell-free protein synthesis system or in a living cell.
2. The protein according to claim 1, wherein said label portion comprises a radioactive substance or a non-radioactive label substance.
3. The protein according to claim 1, wherein said acceptor portion comprises a nucleic acid derivative.
4. The protein according to claim 1, wherein said acceptor portion comprises a compound in which a nucleic acid and an amino acid or an amino acid derivative are bound to each other.
5. The protein according to claim 1, wherein said acceptor portion comprises a compound in which 2'- or 3'-aminoadenosine or its derivative and an amino acid or an amino acid derivative are bound to each other.
6. The protein according to claim 1, wherein said acceptor portion comprises puromycin or its derivative.
7. A method for producing the protein as defined in claim 1, comprising the step of carrying out

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synthesis of a protein in a cell-free protein synthesis system or in a living cell in the presence of a labeling compound comprising a label portion comprising a label substance and an acceptor portion comprising a compound having an ability of binding to a C-terminal of a synthesized protein when protein synthesis is carried out in the cell-free protein synthesis system or in the living cell, said labeling compound being present at a concentration effective for said labeling compound to bind to the C-terminal of the synthesized protein.

8. A labeling compound for labeling a protein, comprising a label portion comprising a label substance and an acceptor portion comprising a compound having an ability of binding to a C-terminal of a synthesized protein when protein synthesis is carried out in a cell-free protein synthesis system or in a living cell.

9. A method for analyzing a function of a gene, comprising the steps of:

adding a nucleic acid containing the gene to a cell-free protein synthesis system as a template; and

carrying out protein synthesis in the presence of a labeling compound comprising a label portion comprising a label substance and an acceptor portion comprising a compound having an ability of binding to a C-terminal of a synthesized protein when protein

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synthesis is carried out in a cell-free protein synthesis system or in a living cell to obtain a protein having the labeling compound attached to the C-terminal of the protein, said labeling compound being present at a concentration effective for said labeling compound to bind to the C-terminal of the synthesized protein; and

analyzing a function of the labeled protein.

10. The method according to claim 9, wherein said analysis of the function of protein comprises determination of a protein-protein interaction.

11. The method according to claim 9, wherein said analysis of the function of protein comprises determination of a protein-nucleic acid interaction.

12. The method according to claim 9, wherein said analysis of the function of protein comprises determination of an interaction between a protein and a ligand capable of specifically binding to the protein.

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